NUEXCO

EXECUTIVE SUMMARY
REPORT 194
(All data as of September 30, 1984)

Exchange Value
$17.50, unchanged

The **Exchange Value** is **$17.50** per pound U_3O_8, unchanged since last month. Four recent uranium sales are reported, involving a total of two million pounds U_3O_8 equivalent. One was a sale of natural UF_6; two involved deliveries prior to 1986, and also met the conditions for inclusion in the Transaction Value.

Supply-Demand Ratio
rose to 5.8:1.

Active spot and near-term **uranium supply** amounts to **5.5 million** pounds U_3O_8 equivalent, up 0.4 million pounds since last month. Active spot and near-term **uranium demand** totals **955 thousand** pounds, down 95 thousand pounds. The spot and near-term **supply-demand ratio** rose to **5.8:1.**

Transaction Value
rose $0.15, to $16.55

The **Transaction Value** is **$16.55** per pound U_3O_8, up $0.15 since last month. The calculation includes 12 transactions involving a total of 4.3 million pounds U_3O_8 and equivalent UF_6, and covers a period of 5 months.

Loan Use Charge Rate
unchanged at 6%

The **Loan Use Charge Rate** remains **6 percent** per annum in an almost dormant market.

Conversion Value
rose to $1.00

The **Conversion Value** is **$1.00** per pound U as UF_6, up from $0.80 last month. No secondary market conversion transactions are reported. Active secondary market supply of conversion services for delivery within three years totals 2.8 million pounds U as UF_6. No active demand is reported.

SWU Values
$115 for DOE-origin (FY85)
$20 discount for FY86
$90 for non-DOE origin
(delivery within 15 months)
$98 for calendar year 1986

The **SWU Values** are **$115** per SWU of DOE origin and FY85 delivery, at 0.3 tails, and **$20** per SWU discount from DOE price for FY86 delivery (at 0.3 tails). SWU Values for non-DOE origin are **$90** per SWU for delivery within 15 months, and **$98** per SWU for calendar year 1986. No secondary market transactions are reported. Active secondary market SWU supply amounts to 275 thousand SWUs, while active demand totals 395 thousand SWUs.

Focus

Japan's nuclear industry is expanding its fuel fabrication facilities in an effort to achieve complete domestic capability.

Australia

The status of contracts with Electricite de France is uncertain as a result of Australia's ban of uranium exports to France.

Japan

The Ministry of International Trade and Industry Advisory Committee recently confirmed previous goals for nuclear generating capabilities into the late 1990s.

Switzerland

Two antinuclear referendums were defeated by public vote.

United States

Westinghouse paid Intercontinental Energy Corporation to take title to the Lamprecht uranium mine (in situ leach) in Texas.

Raw Materials

The Novaya uranium mine in Western USSR is associated with one of the world's largest iron-producing regions.

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NUEXCO REPORT 194 FIGURES OF THE MONTH (Sepember 30, 1984)	This Month (Report 194)	Last Month (Report 193)	12 Months Ago (Report 182)
Exchange Value[1]	17.50	17.50	24.00
Transaction Value[1]	16.55	16.40	23.65
Loan Use Charge Rate[2]	6%	6%	6%
Conversion Value[3]	1.00	0.80	1.00
Near-Term Uranium Supply[4]	5.5	5.1	7.2
Near-Term Uranium Demand[5]	0.96	1.1	4.4
Near-Term Supply-Demand Ratio	5.8	4.6	1.7
Recent Uranium Sales:			
Number of Transactions[6]	4	4	2
Quantity of Material[7]	2.0	1.0	0.1-0.35
Nuexco SWU Values:[8]			
DOE origin, FY85 delivery, 0.3 tails assay	115	100	—
DOE origin, FY86 delivery, 0.3 tails assay	20[9]	—	—
non-DOE origin, delivery within 15 months	90	85	—
non-DOE origin, delivery for calendar year 1986	98	—	—
USDOE SWU Prices:			
USEC	135.00	135.00	—
AFC	153.00[10]	153.00[10]	138.65
Requirements	157.00[10]	157.00[10]	149.85
Market Value of Enriched UF_6[11,12]:			
2.5 w/o U^{235}	587	537	583
3.0 w/o U^{235}	758	691	743
3.5 w/o U^{235}	932	848	906
4.0 w/o U^{235}	1,109	1,008	1,072

[1]US $ per pound U_3O_8 equivalent.
[2]Per annum.
[3]US $ per pound U as UF_6.
[4]Active inquiries to sell, for delivery within 12 months after contract signing (millions of pounds U_3O_8).
[5]Active inquiries to purchase, for delivery within 12 months after contract signing (millions of pounds U_3O_8).
[6]Uranium sales only; does not include loans, conversion, or SWU transactions.
[7]Millions of pounds U_3O_8 equivalent.
[8]US $ per SWU.
[9]Discount from USEC price on delivery.
[10]Effective 10 1 84.
[11]Calculated using the Nuexco Exchange Value, Conversion Value, and 0.20 percent tails assay. From 2 28 83 through 9 30 83, calculations used the Nuexco SWU Value for the relevant fiscal year. From 10 31 83 through 2 29 84, calculations used the Nuexco SWU Value for DOE origin and FY84 delivery. As of 3 31 84, calculations use the Nuexco SWU Value for DOE origin and FY85 delivery.
[12]US $ per KgU as UF_6, rounded to the nearest $.

INDEX TO LAST MONTH'S REPORT (193)

Topic		Page
Commentary	US Government's Uranium Enrichment Program	12
Analysis and Commentary	Enriched Uranium Sales: Effect on Supply	14
Analysis and Commentary	US and European Uranium Purchases 1979 84	21
Japan	Site for Enrichment and Other Facilities	25
South Africa	Release of the NUCOR Resources Report	25
United Kingdom	Commercial AGR Progress	27
United States	1984 Nuclear Power Plant Progress	28
Korea	Update on 1984 Plant Construction	31
Taiwan	Update on Nuclear Power Program	33
Uranium Marketing and Prices	*Natural Uranium and Conversion* Pricing in July 1984	1
	Enriched Uranium and SWUs Pricing in August 1984	1

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URANIUM THROUGH THE LOOKING GLASS

By

George White, Jr.
President
Nuexco

Presented to:

Atomic Industrial Forum Uranium Seminar

Keystone, Colorado
October 2, 1984

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URANIUM THROUGH THE LOOKING GLASS

By
George White, Jr.
President, Nuexco

A year ago spot uranium prices were about $24 per pound U_3O_8 and had been rising since late 1982. The prevailing mood was generally upbeat. Some of you thought me unduly bearish for saying, during last year's Santa Fe meeting, that I found it difficult to develop a convincing case for any substantial or sustainable price recovery while production continued to exceed consumption and large inventories were held in weak hands.

Being a devotee of the theory of contrary opinion, I also noted:

"As the consensus grows concerning the likely occurrence of some future event, so does my suspicion that the event in question will not occur."

While I had then anticipated lower prices, I assigned a very low probability to any penetration of the $20 level. In fact, spot prices made an intra-month low of $16 per pound U_3O_8 in March of this year and have yet to recover to the $20 level.

My point is this. Prices won't move up (or down) even one penny because you or I believe that higher (or lower) prices would be beneficial or detrimental to one party or another. The market doesn't care one bit about what is right or wrong, good or bad, healthy or unhealthy, smart or stupid. The market is what it is. Hence my title, for as you know, viewing things through a mirror reverses them. I have the distinct impression that we have spent far too much time in front of the mirror—talking and worrying about how things ought to be rather than how things really are.

In this context, it is my view that in late 1983 and early 1984, we witnessed certain events that have fundamentally and perhaps permanently changed the uranium market. In order of importance, these events were: the issuance of U.S. Enrichment Contract, the Cigar Lake announcement, and, finally, what I refer to as the Zimmer episode. Each was significant, but coming as they did, one on top of the other, their cumulative impact was enormous. Taking them one at a time:

The new enrichment contract proposed by DOE in January 1984 marked the end of an era when uranium demand was driven by the feed delivery requirements of enrichment contracts, and the return to a situation where uranium demand is a function of reactor consumption.

The over-expansion of the uranium production industry was the result of a series of miscalculations. The utility industry miscalculated capacity needs and its ability to finance the plants ordered. AEC, ERDA and DOE, in turn, repeatedly miscalculated future growth of nuclear power. Their overly optimistic forecasts indicated a SWU shortage and led to changes in enrichment contracting policy. Uranium producers responded to these forecasts and the expressed needs of utilities by increasing production as fast as possible and planning still further expansion. With perfect hindsight, it is fair to observe what we missed some pretty clear warning signals. As the delays and cost overruns became apparent, the basic financial integrity of many utilities was seriously threatened. Secondly, it should have been clear that the large and continuously growing divergence between uranium consumption and feed demand associated with enrichment contracts was an anomaly that could not continue indefinitely.

The USEC allows utilities to supply uranium in quantities and on schedules that match actual needs as opposed to meeting pre-set, necessarily optimistic SWU schedules. This reduces and defers the amount of uranium that will be needed by those utilities that held AFC contracts. Uranium inventories will be drawn down more slowly, and new uranium purchases will be deferred. Similar effects will result from the provisions allowing utilities to work off inventories of enriched product and the provisions which allow purchases of non-DOE SWU and non-DOE enriched product. In a speech delivered last month at the Uranium Institute, Dick Andersen of our staff quantified this reduced demand at 118 million pounds U_3O_8 over the period through 1991.

While it had to happen eventually, the USEC, from a uranium producer's viewpoint, can only be described as a near and intermediate term disaster. It may be argued that, longer term, the effects will be beneficial—the consequence of a rationalized producer sector, but the situation is painful today.

The second event was the announcement of the Cigar Lake deposit. The formal announcement of a new uranium find would hardly have been so momentous, but for the facts. Size—125 million pounds (since increased to 230 million pounds and still open); Grade—10 percent; Location—in Saskatchewan right on trend with Key Lake and other high-grade deposits; and, Timing—December 1983.

So, just at the time that the USEC was announced with its implications of reduced and deferred uranium demand, the largest and richest deposit in history was an-

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nounced. For me, Cigar Lake has conclusively demonstrated that Saskatchewan has fully emerged as the Saudi Arabia of the uranium business. I am not a geologist, but have little doubt that Key Lake and Cigar Lake are but the tip of a large, yellow iceberg.

With demand reduced and delayed, and persuasive evidence that uranium is not only abundantly available, but abundantly available at low cost, one can understand the ennui with which utilities greet producer warnings about the dire consequences of continued low prices.

The final thread in this fabric is the Zimmer episode. I refer, of course, to the decision by Cincinnati Gas & Electric to scrap its essentially complete nuclear unit. This announcement came in January 1984 hard on the heels of the USEC and Cigar Lake. And Zimmer has been followed by other cancellations and near cancellations including Marble Hill, Midland, Seabrook and Shoreham. Zimmer's fuel, about 2.5 million pounds U_3O_8 equivalent, was liquidated back into the market, some as U_3O_8, some as UF_6 and the balance through defabrication. All this material reduces unfilled future requirements and delays the date that new supplies are needed from primary producers. Additional liquidations are merely a question of time.

So we have the following situation. Demand has been reduced as a consequence of both a new enrichment contract and reactor cancellations. Production continues to exceed consumption, the more so as reactors are canceled, causing inventories to grow and further increasing carrying costs. Inventory liquidation by utilities wishing to rationalize their individual situations runs headlong into competition from a variety of sources, including, (a) primary producers willing or forced to sell to maintain cash flow, (b) newly non-nuclear utilities which need cash and are prepared to dump uranium at almost any price and (c) sellers of enriched product. The impact is obvious and immediate—price weakness. Under the circumstances, it is difficult to see how higher prices are possible until the market clears. A more likely scenario would involve a continuation of the pattern evident during the past two years, including the erratic movements associated with abrupt decisions to buy and sell. In the longer term, hopes for substantial price increases face the reality of Cigar Lake.

In referring to Cigar Lake I intend to be both specific and general for I see that deposit as representative of a class of deposits which, by their size and grade, dwarf what we have previously come to view as normal. Indeed, who would have dared, five years ago, to predict the discovery of a 230 million pound deposit, grading 10 percent? Likewise, who of you would be so bold as to suggest, today, that Cigar Lake is one of a kind?

Actually the history of uranium exploration argues the reverse. Contrary to experience in oil and gas and many minerals where the shallower, richer, lower-cost material was found and exploited first, uranium started with lower grades and higher costs and appeared to be proceeding in the opposite direction. Thus, any suggestion that Cigar Lake is a one of a kind deposit is likely in error. It is certainly contrary to recent experience and could well risk the trap of intellectual as well as geologic arrogance.

Where then does all this leave us?

The facts appear to be these:

1. The USEC has reduced and deferred uranium demand.

2. New, large, high-grade uranium deposits are waiting in the wings.

3. Plant cancellations have released and will continue to release large quantities of uranium into the spot and near-term markets. How much? I would view 10 million pounds over the next three years as a minimum.

4. During the four-year period 1980–1983 when prices were declining or weak, free world uranium production exceeded consumption by more than 130 million pounds U_3O_8. And during 1984, Nuexco believes that production will be approximately 25 million pounds in excess of consumption, bringing 5-year total additions of inventory to nearly 160 million pounds U_3O_8.

5. Inventories as of year end 1984 are estimated at 470 million pounds. This 470 million pound figure excludes DOE-owned material and other non-commercial stocks held by other governments. Put another way, if all uranium production halted on December 31, 1984, we could rely on inventory alone and not *have* to restart the mills until 1990.

Assuming these facts represent reality, what are the market implications, both near and longer term? First and foremost, I would repeat an old Wall Street admonition—"Don't fight the tape." As noted before, whether or not we like it, the market is what it is. If you have a deposit with production costs of $80 per pound U_3O_8, you are *not* in the uranium business—regardless of how much you would like to think you are.

The uranium market has become a commodities market. Spot and near-term prices reflect current supply/demand forces, and, as such, have no relationship to the prices necessary to sustain reasonable rates of return for uranium investment over the long term.

Nuexco's Exchange Value is generally viewed in the industry as describing the spot or near-term market. The

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long-discussed concept of a definable, recognized "long-term price" or "contract price" presents some very different and difficult problems. Presumably such a long-term price would, in order to be considered fair or appropriate, cover full cost of production and reasonable profit. But the exercise becomes meaningless when one tries to compare 3-pound rock in Wyoming with 50-pound rock at Key Lake and 200-pound rock at Cigar Lake. One could just as well ask, "What is a fair price for oil?" Saudi Arabia may have production costs of $1.00 per barrel. Deep oil in Wyoming's Overthrust Belt may cost $15 or $20 per barrel. A fair price for the Saudis would choke off most US production. A fair price for Wyoming oil would provide the Saudis with substantial economic rewards—even obscene profits. Likewise, a fair price for Wyoming uranium would be a bonanza for the high-grade Canadian producers.

The facts suggest that the commodity aspects of uranium will become more important and more dominant before they become less so. This may not be welcome news to producers and particularly those producers who presently have uncommitted production or whose present contracts are due to expire in the next few years. It is my judgment that even some of the larger, non-US producers whose long-term client relationships have supported negotiated market prices well above today's spot levels will find their customers increasingly insistent on reducing or eliminating the negotiated premium over nearer-term prices.

Any sustainable upward movement of spot prices in real terms must await market clearing. Some has taken place. We have seen some utilities acquire excess inventory in lieu of conventional long-term contracts. Much more will have to occur. Redistribution of inventories will not, however, handle the problem alone. Production and consumption must be brought into balance. So long as production exceeds consumption by 33% and inventories continue to increase, it is difficult to make a case for higher prices.

I would close with one final caution. The moment I sense that the majority of you are *really* beginning to agree with these views, I will be looking very carefully for reasons that I should again reverse my position. Contrarians like to see things in reverse—as through a looking glass.

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